REMARKS

Claims 1, 4-13, 15, and 18 are pending in the application. Claims 1, 4-13, 15, and 18 have been rejected.

Claims 1, 5-8, 10, 12-13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, U.S. Patent No. 5,659,801 (Kopsaftis), Torrey et al., U.S. Publication No. 2003/0084240, (Torrey), and Goodman et al, U.S. Publication No. 20040054883 (Goodman)..

Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, Torrey, and Goodman as applied to claim 1 above, and further in view of Shirasawa et al., U.S. Publication No. (2002/0166027 (Shirasawa).

Claim 9 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, Torrey, and Goodman as applied to claim 6 above, and further in view of Pellegrino et al., U.S. Publication No. 2004/0225775 (Pellegrino)

Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, Torrey, and Goodman as applied to claim 6 above, and further in view of Abbott et al., U.S. Patent No. 6,205,093 (Abbott).

Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, Torrey, and Goodman and Burton et al., U.S. Patent No. 6,393,535 (Burton).

Claim 18 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kopsaftis, Torrey, Goodman, and Burton as applied to claim 15 above, and further in view of Shirasawa.

Claims 1, 5-8, 10, and 12-13 are allowable over Kopsaftis, Torrey and Goodman.

The present invention, as set forth by independent claim 1, relates to a storage library that includes the steps of assigning a first Logical Unit Number (LUN) to a first device where the first device is an Input/Output (I/O) device of the automated data storage library, assigning a second LUN to a memory where the memory is memory of the I/O device, wherein the first LUN and the second LUN are separate, and wherein the first LUN processes I/O commands, and the

second LUN processes microde update commands, the first device receives a plurality of commands and obtains a LUN address from each of the plurality of commands, where in response to the LUN address obtained from each of the plurality of commands being equal to the first LUN, processing each of the plurality of commands as input/output commands of the first device, and in response to the LUN address obtained from each of the plurality of commands being equal to the second LUN, directly overwriting the microde in the memory using the LUN address assigned to the memory by processing each of the plurality of commands, thereby updating the stored microde in the first device, and in response to said first device receiving a prepare for microcode update command, placing said first device in an operational state to receive said update of said microcode.

The present invention, as set forth by independent claim 6, relates to an automated data storage library for updating microcode which includes a first device, that is an Input/Output (I/O) device of the automated data storage library, addressable by a first Logical Unit Number (LUN), a memory of the I/O device addressable by a second LUN, wherein the first LUN and the second LUN are separate, and the first LUN processes I/O commands, and the second LUN processes microde update commands and wherein the first device receives plurality of commands, obtains a LUN address from each of the plurality of commands, in response to the LUN address obtained from each of the plurality of commands being equal to the first LUN, the first device processes each of the plurality of commands as input/output commands of the first device, and in response to the LUN address obtained from each of the plurality of commands being equal to the second LUN, the first device directly overwrites the microde in the memory using the LUN address assigned to the memory by processing each of the plurality of commands, and thereby updates the stored microde in the first device.

Kopsaftis discloses a peripheral device for replacing resident microcode with new microcode by download by an application program. The peripheral device comprises a non-volatile memory containing the resident microcode. Further circuitry is responsive to the application program for receiving peripheral device commands. A resident processor is responsive to the resident microcode, and includes a detector for a received initiator peripheral device command. The resident processor also includes a detector for a transfer disk drive command, which includes the new microcode, and which is received while the disk drive is in a

waiting state. Further circuitry is coupled between the receiving circuitry and the non-volatile memory and is responsive to the resident processor, for entering the waiting state when an initiator command is detected, and for transferring the new microcode from the receiving circuitry into the nonvolatile memory and restarting the operation of the disk drive when a transfer disk drive command is detected.

When discussing Kopsaftis, the examiner sets forth:

> Kopsaftis fails to explicitly teach of assigning a second LUN to a memory. However, Torrey teaches of assigning a first LUN to a first I/O device; assigning a second LUN to a memory, wherein said memory is memory of said I/O device (fig. 2; paragraph 15-16; where the library is LUN 1-0 or LUN 0 and the drives may be LUNs 1-1, 1-2 or LUNs 1,2) (Office action dated June 6, 2008, Page 4.)

Torrey discloses a virtual electronic data library system which includes a plurality of storage elements. Each storage element stores a medium of a plurality of media. A plurality of subsets of the media each have one format of a plurality of formats. A plurality of input/output elements are preferably adapted to receive and read the media stored in the storage elements. Each of the input/output elements is capable of operatively receiving media having at least one of the formats. A library controller has firmware where the subsets of the media are each assigned a logical unit number for use by the controller to partition the library. A transport is operable to remove the media from the storage elements and operatively deploy the media for use by one of the input/output elements. The transport deploys the media in an input/output element according to the logical unit numbers.

The portion of Torrey to which the examiner refers (i.e., paragraphs 15 and 16) generally discuss using logical unit numbering to address different portions of the library 20. However, Torrey is silent on the concept of assigning a second LUN to a memory where the memory is memory of an I/O device to which a first LUN is assigned, as is required by claims 1 and 6.

The examiner goes on to set forth:

> The combination of Kopsaftis and Torrey teaches of said second LUN processes microcode update commands (Kopsaftis, fig. 1, 3; column 8, line 63-column 9, line 2; in the combination of the internal memories are assigned LUNs, and are thus accessed via them Torrey, paragraph 16, 19-20.) (Office action dated June 6, 2008, Page 4.)

However, as neither Kopsaftis or Torrey teach of suggest assigning a second LUN to a memory where the memory is memory of an I/O device to which a first LUN is assigned, Kopsaftis and Torrey could not teach or suggest the first LUN processing I/O commands and the second LUN processes microde update commands, as is required by claims 1 and 6.

The examiner goes no to set forth:

> Kopsaftis fails to explicitly teach of directly overwriting said microcode in said memory.
>
> However, Goodman teaches of directly overwriting said microcode in said memory (fig. 4; paragraph 14-15, 46). (Office action dated June 6, 2008, Page 5.)

Goodman discloses updating firmware stored in a rewritable non-volatile memory as a plurality of firmware code images having position dependent code. A plurality of update code images are made available that have position dependent code specifying positions of a rewritable non-volatile memory, such that each update code image is suitable for replacing a different stored code image.

However, as Kopsaftis, Torrey and Goodman do not teach of suggest assigning a second LUN to a memory where the memory is memory of an I/O device to which a first LUN is assigned, Kopsaftis, Torrey and Goodman could not teach or suggest the first LUN processing I/O commands and the second LUN processes microde update commands, much less in response to a LUN address obtained from each of a plurality of commands being equal to the second LUN, directly overwriting microde in the memory using the LUN address assigned to the memory by processing each of the plurality of commands, thereby updating the stored microde in the first device, as is required by claims 1 and 6.

Accordingly, claims 1 and 6 are allowable over Kopsaftis, Torrey and Goodman. Claim 5 depends from claim 1 and is allowable for at least this reason. Claims 7 – 8, 10 and 12 – 13 depend from claim 6 and are allowable for at least this reason.

Claim 4 is allowable over Kopsaftis, Torrey and Goodman and Shirawawa.

The present invention, as set forth by dependent claim 4 relates to the placing the first device in an operational state to receive the update of the microcode which further comprises not accepting any new commands for processing; completing all current commands; and placing movable components at a rest position.

Kopsaftis, Torey and Goodman are discussed above.

Shirasawa discloses data recorded in a disk of a hard disk unit may be copied to another hard disk unit. A proxy mode, for making the other hard disk unit that has been copied with the data to perform an I/O process to the hard disk unit in place thereof, is performed. The firmware of the original hard disk unit is updated, and contents of the disk are set up to a latest updated state. Then, the operation in the proxy mode is stopped, and the operation is switched to an operation in a normal mode where the I/O process is directly performed to the original hard disk unit.

Kopsaftis, Torrey, Goodman and Shirawawa do not disclose or suggest a step of placing a first device in an operational state to receive the update of the microcode which further comprises not accepting any new commands for processing; completing all current commands; and placing movable components at a rest position, as required by claim 4.

Claim 15 is allowable over Kopsaftis, Torrey, Goodman and Burton.

The present invention, as set forth by independent claim 15, relates to an article of manufacture comprising a computer readable medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform method steps for updating microcode of a first device of an automated data storage library assigned to a first LUN. The first device is coupled to a memory assigned to a second LUN. The method includes the steps of the first device receiving a plurality of commands, wherein the first device is an Input/Output (I/O) Device, the memory is memory of the I/O device, the first LUN and second LUN are separate, and wherein the first LUN processes I/O commands, and the second LUN processes microde update commands and in response to the LUN address obtained from each of the plurality of commands being equal to the first LUN, processing each of the plurality

of commands as input/output commands of the first device, and in response to the LUN address obtained from each of the plurality of commands being equal to the second LUN, directly overwriting the microde in the memory using the LUN address assigned to the memory by processing each of the plurality of commands, thereby updating the stored microde in the first device, and in response to said first device receiving a prepare for microcode update command, placing said first device in an operational state to receive said update of said microcode.

Kopsaftis, Torrey and Goodman are discussed above.

Burton discloses defining paths for a computer to use to send commands to execute with respect to storage regions in a storage device that are accessible through at least two controllers. For each storage region, one controller is designated as a preferred controller and another as a non-preferred controller. The computer initially sends a command to be executed with respect to a target storage region to the preferred controller for the target storage region and sends the command to the non-preferred controller for the target storage region if the preferred controller cannot execute the command against the target storage region. In response to the non-preferred controller receiving at least one command for the target storage region, the designation is modified to make a current preferred controller the non-preferred controller for the target storage region and a current non-preferred controller the preferred controller for the target storage region.

Kopsaftis, Torrey, Goodman and Burton, taken alone or in combination do not disclose or suggest in response to the LUN address obtained from each of the plurality of commands being equal to the second LUN, directly overwriting the microde in the memory using the LUN address assigned to the memory by processing each of the plurality of commands, thereby updating the stored microde in the first device; and, in response to the first device receiving a prepare for microcode update command, placing the first device in an operational state to receive the update of the microcode, as is required by independent claim 1 and as is substantially required by independent claim 15. Accordingly, claim 15 is allowable over Kopsaftis, Torrey, Goodman and Burton.

Claim 18 is allowable over Kopsaftis, Torrey, Goodman, Burton and Shirasawa.

The present invention, as set forth by dependent claim 18 relates to the placing the first device in an operational state to receive the update of the microcode which further comprises not accepting any new commands for processing; completing all current commands; and placing movable components at a rest position.

Kopsaftis, Torey, Goodman, Burton and Shirasawa are discussed above.

Kopsaftis, Torrey, Goodman, Burton and Shirawawa do not disclose or suggest a step of placing a first device in an operational state to receive the update of the microcode which further comprises not accepting any new commands for processing; completing all current commands; and placing movable components at a rest position, as required by claim 18.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the examiner is requested to telephone the undersigned.

The Commissioner is authorized to deduct any additional fees, which may be necessary, and to credit any overpayment to Deposit Account 502264.

I hereby certify that this correspondence is being electronically submitted to the COMMISSIONER FOR PATENTS via EFS on September 5, 2008.

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Respectfully submitted,

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